

# Appendix A: Available Solar Radiation for Selected National Solar Radiation Data Base Stations

(Greater than 4.0 kWh/m<sup>2</sup>/day Direct-Beam Radiation for Horizontal Single-Axis Tracking Systems)

[Data excerpted with permission from *Solar Radiation Data Manual for Flat-Plate and Concentrating Collectors* (1994)  
National Renewable Energy Laboratory (NREL/TP-463-5607)]

|                            |             | Tracker | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |          |          |         |         |         |         |         |         |
|----------------------------|-------------|---------|---|---------|---------|---------|---------|----------|----------|---------|---------|---------|---------|---------|---------|
|                            |             |         | Jan   | Feb     | Mar     | Apr     | May     | June     | July     | Aug     | Sept    | Oct     | Nov     | Dec     | Year    |
| Flagstaff,<br>Arizona      | 1-Axis, E-W | Average | 4.4   | 4.4     | 4.4     | 5.1     | 5.7     | 6.3      | 4.4      | 4.3     | 4.6     | 4.9     | 4.6     | 4.3     | 4.8     |
|                            | Horiz Axis  | Min/Max | 2.5/6.0   | 2.9/6.0 | 2.7/6.4 | 3.8/6.1 | 4.2/6.8 | 4.7/7.7  | 2.8/6.0  | 2.3/5.6 | 3.4/6.4 | 2.5/6.3 | 2.6/6.1 | 2.3/5.7 | 2.9/5.3 |
| Phoenix,<br>Arizona        | 1-Axis, N-S | Average | 3.6   | 4.4     | 5.4     | 6.9     | 7.9     | 8.6      | 6.0      | 5.9     | 6.0     | 5.4     | 4.1     | 3.4     | 5.6     |
|                            | Horiz Axis  | Min/Max | 2.1/5.0   | 2.8/5.9 | 3.3/7.8 | 5.1/8.4 | 5.8/9.4 | 6.3/10.3 | 3.7/8.1  | 3.3/7.7 | 4.4/8.4 | 2.7/6.9 | 2.2/5.4 | 1.8/4.5 | 4.6/6.2 |
| Prescott,<br>Arizona       | 1-Axis, E-W | Average | 4.2   | 4.6     | 4.8     | 5.7     | 6.4     | 6.8      | 5.6      | 5.3     | 5.2     | 5.0     | 4.5     | 4.1     | 5.2     |
|                            | Horiz Axis  | Min/Max | 3.0/5.4   | 3.0/5.9 | 3.4/6.3 | 4.8/7.1 | 5.2/7.1 | 6.0/7.5  | 4.5/6.7  | 4.4/6.3 | 4.1/6.3 | 3.5/6.0 | 2.6/5.8 | 2.5/5.8 | 4.5/5.6 |
| Tucson,<br>Arizona         | 1-Axis, N-S | Average | 3.4   | 4.6     | 5.8     | 7.6     | 8.5     | 8.9      | 7.2      | 7.0     | 6.5     | 5.4     | 4.0     | 3.2     | 6.0     |
|                            | Horiz Axis  | Min/Max | 2.4/4.5   | 2.8/5.9 | 4.0/7.7 | 6.5/9.8 | 7.0/9.7 | 7.9/10.0 | 5.7/8.8  | 5.6/8.4 | 5.1/8.1 | 3.6/6.6 | 2.2/5.1 | 1.8/4.5 | 5.2/6.5 |
| Bakersfield,<br>California | 1-Axis, E-W | Average | 4.4   | 4.5     | 4.5     | 5.4     | 6.1     | 6.8      | 5.0      | 4.7     | 5.0     | 5.2     | 4.8     | 4.4     | 5.1     |
|                            | Horiz Axis  | Min/Max | 2.8/5.8   | 2.8/6.0 | 2.8/6.4 | 4.0/6.4 | 5.0/6.9 | 5.3/7.4  | 3.8/6.3  | 3.1/5.9 | 3.9/6.7 | 3.0/6.4 | 2.8/6.2 | 2.5/5.7 | 4.3/5.8 |
| Daggett,<br>California     | 1-Axis, N-S | Average | 3.7   | 4.5     | 5.6     | 7.3     | 8.3     | 9.1      | 6.7      | 6.4     | 6.5     | 5.7     | 4.2     | 3.4     | 6.0     |
|                            | Horiz Axis  | Min/Max | 2.3/4.8   | 2.8/6.1 | 3.5/8.1 | 5.5/8.9 | 6.9/9.5 | 7.2/10.1 | 5.1/8.6  | 4.4/8.1 | 4.9/8.9 | 3.2/7.1 | 2.5/5.5 | 2.0/4.4 | 5.1/6.8 |
| Fresno,<br>California      | 1-Axis, E-W | Average | 4.7   | 5.0     | 5.1     | 5.9     | 6.5     | 6.7      | 5.0      | 5.0     | 5.1     | 5.3     | 5.0     | 4.5     | 5.3     |
|                            | Horiz Axis  | Min/Max | 3.1/6.0   | 3.8/6.3 | 3.6/6.5 | 4.8/6.9 | 5.4/7.1 | 5.3/7.7  | 4.2/6.0  | 3.8/5.9 | 4.3/6.3 | 4.0/6.4 | 3.0/6.0 | 3.1/5.9 | 4.7/5.7 |
| Long Beach,<br>California  | 1-Axis, N-S | Average | 4.0   | 5.1     | 6.2     | 8.0     | 8.8     | 8.9      | 6.5      | 6.6     | 6.6     | 5.9     | 4.5     | 3.6     | 6.2     |
|                            | Horiz Axis  | Min/Max | 2.6/5.2   | 3.8/6.6 | 4.4/8.1 | 6.5/9.5 | 7.4/9.6 | 6.9/10.4 | 5.4/7.8  | 5.0/7.9 | 5.4/8.2 | 4.4/7.2 | 2.6/5.5 | 2.5/4.8 | 5.4/6.8 |
| 1-Axis, E-W                | Average     | 2.1     | 2.9   | 3.5     | 4.5     | 5.6     | 6.5     | 6.7      | 5.0      | 5.0     | 5.2     | 4.4     | 3.0     | 2.0     | 4.3     |
|                            | Horiz Axis  | Min/Max | 0.6/3.8   | 1.4/4.2 | 1.8/5.1 | 2.5/5.5 | 4.6/6.6 | 5.7/7.1  | 5.6/7.3  | 4.5/6.6 | 3.7/6.1 | 3.3/5.2 | 1.6/4.0 | 0.9/3.9 | 3.5/4.8 |
| 1-Axis, N-S                | Average     | 1.6     | 2.7   | 4.0     | 5.8     | 7.5     | 8.6     | 8.7      | 7.9      | 6.5     | 4.6     | 2.5     | 1.5     | 5.2     |         |
|                            | Horiz Axis  | Min/Max | 0.5/3.0   | 1.3/3.9 | 2.1/5.9 | 3.2/7.2 | 6.0/8.8 | 7.5/9.5  | 7.3/9.9  | 5.8/8.9 | 4.6/7.7 | 3.4/5.5 | 1.3/3.3 | 0.7/2.9 | 4.1/5.6 |
| 1-Axis, E-W                | Average     | 4.5     | 4.7   | 5.0     | 5.7     | 6.5     | 7.1     | 6.6      | 6.2      | 5.9     | 5.5     | 4.9     | 4.6     | 5.6     |         |
|                            | Horiz Axis  | Min/Max | 2.9/5.8   | 3.0/6.2 | 3.9/6.5 | 4.4/6.8 | 5.6/7.0 | 6.1/7.8  | 4.6/7.6  | 4.6/7.2 | 4.2/6.8 | 4.1/6.3 | 3.4/5.9 | 3.5/5.6 | 4.8/6.0 |
| 1-Axis, N-S                | Average     | 3.7     | 4.6   | 6.1     | 7.7     | 8.7     | 9.6     | 8.8      | 8.4      | 7.5     | 6.0     | 4.3     | 3.5     | 6.6     |         |
|                            | Horiz Axis  | Min/Max | 2.4/4.7   | 2.8/6.2 | 4.7/8.1 | 5.8/9.1 | 7.6/9.5 | 8.2/10.4 | 6.0/10.4 | 6.0/9.9 | 5.1/9.0 | 4.3/6.9 | 2.9/5.2 | 2.6/4.3 | 5.6/7.1 |
| 1-Axis, E-W                | Average     | 1.8     | 2.7   | 3.6     | 4.6     | 5.7     | 6.4     | 6.6      | 5.9      | 5.1     | 4.3     | 2.7     | 1.7     | 4.3     |         |
|                            | Horiz Axis  | Min/Max | 0.5/3.4   | 1.7/4.4 | 2.0/5.2 | 2.7/5.9 | 4.4/6.8 | 4.6/7.4  | 5.7/7.3  | 4.2/6.7 | 4.0/5.9 | 2.9/5.0 | 1.2/4.0 | 0.5/3.8 | 3.2/4.8 |
| 1-Axis, N-S                | Average     | 1.3     | 2.5   | 4.1     | 5.9     | 7.6     | 8.4     | 8.8      | 7.8      | 6.3     | 4.3     | 2.2     | 1.2     | 5.1     |         |
|                            | Horiz Axis  | Min/Max | 0.4/2.6   | 1.5/4.1 | 2.1/6.0 | 3.6/7.9 | 5.8/9.0 | 5.8/10.0 | 7.2/9.9  | 5.2/9.0 | 4.8/7.4 | 2.8/5.2 | 0.9/3.3 | 0.4/2.7 | 3.7/5.8 |
| 1-Axis, E-W                | Average     | 3.2     | 3.3   | 3.5     | 4.1     | 4.0     | 4.2     | 5.2      | 4.8      | 4.0     | 3.7     | 3.5     | 3.2     | 3.9     |         |
|                            | Horiz Axis  | Min/Max | 2.0/4.6   | 2.1/4.9 | 2.6/5.1 | 3.2/5.5 | 2.7/5.1 | 2.0/5.4  | 4.1/5.9  | 3.9/5.5 | 2.2/4.8 | 2.6/4.5 | 2.5/4.3 | 1.8/4.2 | 3.3/4.3 |
| 1-Axis, N-S                | Average     | 2.6     | 3.2   | 4.1     | 5.3     | 5.2     | 5.4     | 6.6      | 6.2      | 4.8     | 3.8     | 2.9     | 2.4     | 4.4     |         |
|                            | Horiz Axis  | Min/Max | 1.6/3.7   | 1.9/4.7 | 3.0/6.0 | 4.0/7.1 | 3.5/6.6 | 2.7/7.0  | 5.1/7.6  | 5.1/7.0 | 2.7/5.8 | 2.8/4.7 | 2.1/3.7 | 1.4/3.2 | 3.7/4.7 |

|                              |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |         |         |         |         |         |         |         |         |
|------------------------------|-------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Tracker                      |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July    | Aug     | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Los Angeles,<br>California   | 1-Axis, E-W | Average   | 3.2     | 3.4     | 3.6     | 4.1     | 3.9     | 3.9     | 4.8     | 4.5     | 3.8     | 3.6     | 3.5     | 3.2     | 3.8     |
|                              | Horiz Axis  | Min/Max   | 2.0/4.5 | 1.9/5.0 | 2.4/4.9 | 3.3/5.4 | 3.0/5.1 | 2.4/5.3 | 3.7/6.1 | 4.0/5.3 | 2.2/4.8 | 2.8/4.4 | 2.3/4.7 | 1.8/4.1 | 3.4/4.2 |
| Sacramento,<br>California    | 1-Axis, N-S | Average   | 2.6     | 3.2     | 4.1     | 5.3     | 5.0     | 5.0     | 6.1     | 5.7     | 4.6     | 3.7     | 2.9     | 2.4     | 4.2     |
|                              | Horiz Axis  | Min/Max   | 1.6/3.6 | 1.8/4.8 | 2.8/5.8 | 4.2/7.0 | 3.7/6.6 | 3.2/6.9 | 4.6/8.0 | 4.9/6.8 | 2.7/5.8 | 2.9/4.5 | 1.9/4.0 | 1.3/3.1 | 3.8/4.7 |
| San Diego,<br>California     | 1-Axis, E-W | Average   | 1.8     | 2.6     | 3.4     | 4.3     | 5.5     | 6.2     | 6.6     | 5.8     | 5.2     | 4.1     | 2.5     | 1.7     | 4.1     |
|                              | Horiz Axis  | Min/Max   | 0.7/3.0 | 1.2/4.6 | 1.8/5.3 | 2.1/5.4 | 4.0/6.5 | 4.9/7.3 | 5.6/7.1 | 4.7/6.6 | 3.8/5.8 | 3.2/4.8 | 1.1/4.1 | 0.6/3.6 | 3.4/4.6 |
| San Francisco,<br>California | 1-Axis, N-S | Average   | 1.3     | 2.4     | 3.8     | 5.6     | 7.3     | 8.3     | 8.8     | 7.7     | 6.3     | 4.1     | 2.0     | 1.2     | 4.9     |
|                              | Horiz Axis  | Min/Max   | 0.5/2.2 | 1.0/4.2 | 2.0/6.1 | 2.8/7.0 | 5.3/8.7 | 6.4/9.8 | 7.4/9.6 | 6.3/8.8 | 4.4/7.2 | 3.1/4.9 | 0.9/3.2 | 0.4/2.5 | 4.1/5.3 |
| Santa Maria,<br>California   | 1-Axis, E-W | Average   | 3.8     | 3.8     | 3.9     | 4.3     | 3.9     | 4.0     | 4.9     | 4.8     | 4.2     | 4.1     | 4.0     | 3.8     | 4.1     |
|                              | Horiz Axis  | Min/Max   | 2.4/4.9 | 2.5/5.1 | 2.9/5.3 | 3.4/5.5 | 2.5/5.2 | 1.8/5.7 | 2.9/5.8 | 3.8/5.6 | 1.9/5.2 | 3.0/5.2 | 2.7/5.2 | 2.5/4.8 | 3.6/4.5 |
| Alamosa,<br>Colorado         | 1-Axis, N-S | Average   | 3.1     | 3.8     | 4.6     | 5.6     | 4.9     | 5.0     | 6.2     | 6.1     | 5.1     | 4.4     | 3.6     | 3.0     | 4.6     |
|                              | Horiz Axis  | Min/Max   | 2.0/4.1 | 2.3/5.1 | 3.4/6.3 | 4.3/7.1 | 3.1/6.8 | 2.3/7.3 | 3.6/7.4 | 4.7/7.2 | 2.3/6.3 | 3.2/5.5 | 2.4/4.6 | 2.0/3.8 | 3.9/5.0 |
| Boulder,<br>Colorado         | 1-Axis, E-W | Average   | 4.8     | 5.0     | 4.7     | 5.0     | 5.4     | 6.2     | 5.5     | 5.0     | 5.1     | 5.2     | 4.8     | 4.6     | 5.1     |
|                              | Horiz Axis  | Min/Max   | 3.5/5.7 | 3.8/6.0 | 3.3/5.7 | 3.3/5.9 | 4.3/6.3 | 5.1/7.4 | 4.7/6.9 | 4.0/5.9 | 3.5/6.3 | 2.8/6.4 | 3.5/5.8 | 3.2/5.6 | 4.4/5.7 |
| Colorado Spgs,<br>Colorado   | 1-Axis, N-S | Average   | 3.7     | 4.8     | 5.7     | 6.9     | 7.4     | 8.4     | 7.4     | 6.7     | 6.5     | 5.5     | 4.0     | 3.4     | 5.9     |
|                              | Horiz Axis  | Min/Max   | 2.6/4.6 | 3.6/5.9 | 3.8/6.9 | 4.6/8.3 | 5.8/8.8 | 6.9/9.9 | 6.2/9.4 | 5.4/8.1 | 4.2/8.0 | 3.0/7.0 | 2.8/4.9 | 2.3/4.2 | 5.0/6.6 |
| Eagle,<br>Colorado           | 1-Axis, E-W | Average   | 3.5     | 3.7     | 3.7     | 4.0     | 4.2     | 5.0     | 4.9     | 4.5     | 4.4     | 4.3     | 3.6     | 3.4     | 4.1     |
|                              | Horiz Axis  | Min/Max   | 2.3/4.6 | 2.8/4.5 | 2.1/4.8 | 2.9/5.0 | 2.9/5.7 | 3.5/6.4 | 3.8/6.1 | 3.4/5.4 | 2.8/5.5 | 2.5/5.2 | 2.7/4.7 | 2.0/4.3 | 3.4/4.5 |
| Grand Junction,<br>Colorado  | 1-Axis, N-S | Average   | 2.6     | 3.4     | 4.2     | 5.3     | 5.6     | 6.6     | 6.5     | 6.0     | 5.4     | 4.3     | 2.8     | 2.3     | 4.6     |
|                              | Horiz Axis  | Min/Max   | 1.6/3.4 | 2.5/4.2 | 2.2/5.7 | 3.6/6.4 | 3.8/7.6 | 4.8/8.5 | 4.8/8.1 | 4.5/7.1 | 3.4/6.7 | 2.4/5.3 | 2.2/3.6 | 1.3/3.0 | 3.7/5.1 |

|                       |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |         |         |         |         |         |         |         |         |
|-----------------------|-------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Tracker               |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July    | Aug     | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Pueblo,<br>Colorado   | 1-Axis, E-W | Average   | 4.0     | 4.2     | 4.2     | 4.6     | 4.8     | 5.7     | 5.5     | 5.1     | 4.8     | 4.8     | 4.1     | 3.9     | 4.6     |
|                       | Horiz Axis  | Min/Max   | 2.6/4.9 | 3.1/5.1 | 2.5/5.1 | 3.3/5.4 | 3.8/5.9 | 4.6/7.0 | 4.4/6.5 | 4.2/6.0 | 3.6/5.8 | 2.8/5.8 | 3.0/5.3 | 2.7/5.0 | 4.1/5.1 |
| Key West,<br>Florida  | 1-Axis, N-S | Average   | 3.1     | 3.9     | 4.9     | 6.1     | 6.4     | 7.5     | 7.2     | 6.6     | 5.9     | 4.9     | 3.3     | 2.8     | 5.2     |
|                       | Horiz Axis  | Min/Max   | 1.9/3.8 | 2.9/4.8 | 2.8/6.1 | 4.3/7.3 | 4.9/8.0 | 6.0/9.3 | 5.7/8.7 | 5.4/7.9 | 4.4/7.4 | 2.9/6.1 | 2.5/4.4 | 1.9/3.6 | 4.6/5.7 |
| Tampa,<br>Florida     | 1-Axis, E-W | Average   | 3.8     | 4.1     | 4.3     | 4.5     | 4.1     | 3.6     | 3.5     | 3.4     | 3.1     | 3.5     | 3.6     | 3.7     | 3.8     |
|                       | Horiz Axis  | Min/Max   | 2.3/4.9 | 2.7/5.1 | 2.9/5.3 | 3.6/5.5 | 2.8/4.7 | 2.5/4.5 | 2.9/4.0 | 2.8/3.9 | 2.4/3.7 | 2.4/4.5 | 2.5/4.5 | 2.6/4.7 | 3.3/4.1 |
| Honolulu,<br>Hawaii   | 1-Axis, N-S | Average   | 3.6     | 4.4     | 5.3     | 6.0     | 5.3     | 4.5     | 4.5     | 4.3     | 3.9     | 3.9     | 3.5     | 3.3     | 4.4     |
|                       | Horiz Axis  | Min/Max   | 2.1/4.6 | 2.8/5.6 | 3.5/6.7 | 4.7/7.5 | 3.6/6.2 | 3.1/5.7 | 3.6/5.1 | 3.6/5.0 | 3.0/4.7 | 2.8/5.1 | 2.4/4.4 | 2.3/4.3 | 3.8/4.8 |
| Kahului,<br>Hawaii    | 1-Axis, E-W | Average   | 4.0     | 4.1     | 4.0     | 4.0     | 4.6     | 5.1     | 5.1     | 4.9     | 4.7     | 4.3     | 4.0     | 4.1     | 4.4     |
|                       | Horiz Axis  | Min/Max   | 2.5/5.7 | 2.3/5.6 | 2.1/5.5 | 2.4/5.3 | 3.3/5.7 | 4.2/6.6 | 3.8/6.1 | 3.7/5.9 | 3.8/5.4 | 3.2/5.5 | 2.4/5.3 | 2.8/5.3 | 3.6/5.0 |
| Lihue,<br>Hawaii      | 1-Axis, N-S | Average   | 4.0     | 4.7     | 5.2     | 5.4     | 6.2     | 6.7     | 6.7     | 6.7     | 6.3     | 5.2     | 4.2     | 3.9     | 5.4     |
|                       | Horiz Axis  | Min/Max   | 2.5/5.7 | 2.5/6.4 | 2.7/7.3 | 3.2/7.2 | 4.3/7.8 | 5.4/8.8 | 5.1/8.1 | 4.9/8.2 | 5.2/7.4 | 3.8/6.7 | 2.5/5.6 | 2.7/5.1 | 4.4/6.2 |
| Boise,<br>Idaho       | 1-Axis, E-W | Average   | 3.3     | 3.4     | 3.1     | 3.0     | 3.7     | 3.9     | 3.8     | 3.9     | 3.9     | 3.5     | 3.0     | 3.2     | 3.5     |
|                       | Horiz Axis  | Min/Max   | 1.7/4.7 | 1.4/4.9 | 1.4/5.0 | 2.0/4.1 | 2.6/4.8 | 2.7/5.7 | 2.6/4.9 | 2.7/4.8 | 2.7/4.7 | 2.6/4.3 | 1.6/4.2 | 1.7/4.8 | 2.8/4.1 |
| Pocatello,<br>Idaho   | 1-Axis, N-S | Average   | 3.2     | 3.8     | 3.9     | 4.0     | 4.8     | 5.0     | 4.9     | 5.1     | 5.1     | 4.1     | 3.0     | 3.0     | 4.2     |
|                       | Horiz Axis  | Min/Max   | 1.6/4.6 | 1.6/5.6 | 1.6/6.3 | 2.6/5.4 | 3.3/6.3 | 3.4/7.4 | 3.3/6.3 | 3.5/6.5 | 3.5/6.0 | 3.0/5.0 | 1.6/4.2 | 1.6/4.5 | 3.3/4.9 |
| Dodge City,<br>Kansas | 1-Axis, E-W | Average   | 1.7     | 2.4     | 3.0     | 3.8     | 4.7     | 5.5     | 6.4     | 5.6     | 5.0     | 4.0     | 2.2     | 1.7     | 3.8     |
|                       | Horiz Axis  | Min/Max   | 0.4/2.8 | 1.0/3.9 | 1.8/4.5 | 1.8/5.2 | 3.1/5.9 | 3.4/6.9 | 5.1/7.6 | 3.9/7.0 | 3.3/6.4 | 2.6/5.7 | 0.9/3.6 | 0.6/3.4 | 3.3/4.3 |
| Goodland,<br>Kansas   | 1-Axis, N-S | Average   | 2.8     | 3.6     | 4.4     | 5.5     | 5.8     | 6.6     | 6.8     | 6.0     | 5.0     | 4.2     | 2.9     | 2.5     | 4.7     |
|                       | Horiz Axis  | Min/Max   | 1.6/4.2 | 2.0/4.9 | 2.2/5.7 | 3.8/6.7 | 4.0/7.6 | 4.6/8.6 | 5.2/7.9 | 4.3/7.5 | 2.9/6.1 | 2.2/5.7 | 1.8/4.2 | 1.4/3.7 | 3.9/5.2 |

|                            |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |          |          |         |         |         |         |         |         |
|----------------------------|-------------|---|---------|---------|---------|---------|---------|----------|----------|---------|---------|---------|---------|---------|---------|
| Tracker                    |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July     | Aug      | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Wichita,<br>Kansas         | 1-Axis, E-W | Average   | 3.2     | 3.2     | 3.3     | 3.6     | 3.8     | 4.5      | 4.7      | 4.3     | 3.7     | 3.7     | 3.1     | 3.0     | 3.7     |
|                            | Horiz Axis  | Min/Max   | 1.6/5.1 | 1.8/4.5 | 1.7/4.5 | 2.5/5.1 | 2.9/5.1 | 3.3/5.7  | 3.8/6.2  | 3.0/5.5 | 1.9/5.3 | 2.0/5.0 | 2.0/4.7 | 1.9/4.8 | 3.1/4.3 |
| Billings,<br>Montana       | 1-Axis, N-S | Average   | 2.5     | 3.0     | 3.8     | 4.7     | 5.1     | 5.9      | 6.3      | 5.7     | 4.5     | 3.8     | 2.5     | 2.1     | 4.2     |
|                            | Horiz Axis  | Min/Max   | 1.2/4.0 | 1.7/4.2 | 2.0/5.2 | 3.2/6.7 | 4.0/6.9 | 4.3/7.6  | 5.0/8.2  | 3.9/7.4 | 2.4/6.5 | 2.0/5.2 | 1.6/3.8 | 1.4/3.5 | 3.6/4.9 |
| Miles City,<br>Montana     | 1-Axis, E-W | Average   | 2.3     | 2.7     | 3.1     | 3.4     | 3.9     | 4.8      | 5.6      | 5.1     | 4.1     | 3.5     | 2.5     | 2.2     | 3.6     |
|                            | Horiz Axis  | Min/Max   | 1.2/3.6 | 1.8/3.9 | 2.0/4.5 | 2.4/4.8 | 2.7/5.0 | 3.5/6.3  | 4.2/6.5  | 4.1/6.3 | 2.3/5.7 | 2.3/4.4 | 1.7/3.4 | 1.5/3.1 | 3.0/4.0 |
| Grand Island,<br>Nebraska  | 1-Axis, N-S | Average   | 1.4     | 2.2     | 3.3     | 4.3     | 5.2     | 6.4      | 7.4      | 6.7     | 4.9     | 3.3     | 1.8     | 1.3     | 4.0     |
|                            | Horiz Axis  | Min/Max   | 0.8/2.3 | 1.5/3.2 | 2.1/4.8 | 3.1/6.3 | 3.7/6.6 | 4.6/8.4  | 5.4/8.6  | 5.3/8.4 | 2.7/6.8 | 2.1/4.2 | 1.2/2.5 | 0.8/1.8 | 3.3/4.5 |
| North Platte,<br>Nebraska  | 1-Axis, E-W | Average   | 3.2     | 3.2     | 3.3     | 3.7     | 3.9     | 4.8      | 4.9      | 4.4     | 3.8     | 3.7     | 2.9     | 2.8     | 3.7     |
|                            | Horiz Axis  | Min/Max   | 1.5/4.5 | 1.9/4.1 | 1.7/5.1 | 2.0/4.8 | 2.3/5.1 | 3.3/5.8  | 3.7/6.0  | 2.9/5.4 | 2.1/5.3 | 2.3/4.9 | 1.8/4.1 | 2.1/3.7 | 2.9/4.2 |
| Scottsbluff,<br>Nebraska   | 1-Axis, N-S | Average   | 2.3     | 2.8     | 3.7     | 4.8     | 5.2     | 6.3      | 6.5      | 5.8     | 4.7     | 3.7     | 2.3     | 1.9     | 4.2     |
|                            | Horiz Axis  | Min/Max   | 1.0/3.3 | 1.5/3.8 | 1.8/5.7 | 2.6/6.4 | 3.1/6.8 | 4.4/7.7  | 4.9/8.0  | 3.8/7.2 | 2.6/6.5 | 2.3/4.9 | 1.3/3.1 | 1.4/2.5 | 3.4/4.7 |
| Albuquerque,<br>New Mexico | 1-Axis, E-W | Average   | 3.0     | 3.3     | 3.3     | 3.6     | 3.9     | 5.0      | 5.4      | 4.9     | 4.3     | 3.9     | 3.0     | 3.0     | 3.9     |
|                            | Horiz Axis  | Min/Max   | 2.2/4.0 | 2.7/4.4 | 2.4/4.5 | 2.8/4.9 | 2.9/4.9 | 3.7/5.9  | 4.7/5.9  | 4.0/5.8 | 3.0/5.5 | 2.4/4.8 | 2.2/3.9 | 2.2/4.2 | 3.5/4.2 |
| Tucumcari,<br>New Mexico   | 1-Axis, N-S | Average   | 2.1     | 3.0     | 3.7     | 4.7     | 5.2     | 6.6      | 7.0      | 6.4     | 5.2     | 3.8     | 2.3     | 1.9     | 4.3     |
|                            | Horiz Axis  | Min/Max   | 1.4/2.9 | 2.3/4.0 | 2.6/5.0 | 3.5/6.4 | 3.8/6.5 | 4.7/7.8  | 6.1/7.8  | 5.0/7.6 | 3.5/6.8 | 2.4/4.9 | 1.7/3.0 | 1.4/2.8 | 3.9/4.7 |
| Elko,<br>Nevada            | 1-Axis, E-W | Average   | 4.5     | 4.6     | 4.6     | 5.3     | 5.9     | 6.3      | 5.5      | 5.2     | 4.9     | 5.1     | 4.6     | 4.4     | 5.1     |
|                            | Horiz Axis  | Min/Max   | 3.1/5.8 | 3.0/5.7 | 3.0/6.2 | 4.3/6.1 | 4.7/7.1 | 5.3/7.4  | 4.3/6.4  | 3.7/6.0 | 3.9/6.2 | 3.3/6.5 | 2.8/5.9 | 2.6/5.7 | 4.3/5.5 |
| Ely,<br>Nevada             | 1-Axis, N-S | Average   | 3.7     | 4.6     | 5.6     | 7.2     | 8.0     | 8.4      | 7.2      | 6.7     | 6.2     | 5.4     | 4.0     | 3.4     | 5.9     |
|                            | Horiz Axis  | Min/Max   | 2.5/4.8 | 3.0/5.7 | 3.4/7.6 | 5.7/8.4 | 6.1/9.7 | 6.8/10.0 | 5.4/8.4  | 4.7/7.9 | 4.7/7.9 | 3.4/7.2 | 2.4/5.2 | 2.0/4.5 | 4.8/6.4 |
| 26                         | 1-Axis, E-W | Average   | 4.1     | 4.3     | 4.4     | 4.9     | 5.1     | 5.6      | 5.3      | 4.8     | 4.5     | 4.7     | 4.2     | 4.1     | 4.7     |
|                            | Horiz Axis  | Min/Max   | 2.6/5.4 | 3.1/5.4 | 3.1/5.4 | 4.0/5.8 | 4.2/6.1 | 4.4/6.7  | 4.4/6.1  | 4.1/6.1 | 3.8/5.8 | 3.3/6.2 | 2.5/5.2 | 2.4/5.7 | 4.1/5.1 |
| 1-Axis, N-S                | Average     | 3.3   | 4.2     | 5.2     | 6.6     | 6.8     | 7.4     | 6.9      | 6.3      | 5.7     | 5.1     | 3.7     | 3.1     | 5.4     |         |
|                            | Horiz Axis  | Min/Max   | 2.1/4.4 | 3.0/5.4 | 3.6/6.4 | 5.2/7.8 | 5.6/8.2 | 5.6/8.9  | 5.7/8.2  | 5.4/8.3 | 4.6/7.3 | 3.5/6.7 | 2.1/4.5 | 1.8/4.4 | 4.7/5.9 |
| 1-Axis, E-W                | Average     | 2.8   | 3.1     | 3.2     | 3.6     | 4.4     | 5.4     | 6.0      | 5.4      | 5.1     | 4.4     | 3.0     | 2.8     | 4.1     |         |
|                            | Horiz Axis  | Min/Max   | 1.7/4.2 | 1.8/5.0 | 1.9/4.2 | 2.0/5.1 | 2.5/6.0 | 3.5/7.0  | 4.9/7.9  | 3.7/6.5 | 3.1/6.8 | 3.2/5.5 | 1.7/4.7 | 1.0/4.7 | 3.5/4.5 |
| 1-Axis, N-S                | Average     | 2.1   | 2.8     | 3.7     | 4.8     | 5.9     | 7.2     | 8.1      | 7.3      | 6.3     | 4.5     | 2.3     | 1.9     | 4.8     |         |
|                            | Horiz Axis  | Min/Max   | 1.2/3.1 | 1.6/4.6 | 2.2/4.9 | 2.7/6.7 | 3.4/8.1 | 4.8/9.5  | 6.5/10.7 | 5.0/8.9 | 3.8/8.6 | 3.2/5.7 | 1.3/3.7 | 0.6/3.2 | 4.0/5.3 |
| 1-Axis, E-W                | Average     | 3.6   | 3.8     | 3.7     | 4.2     | 4.6     | 5.7     | 5.7      | 5.1      | 5.2     | 4.7     | 3.7     | 3.5     | 4.5     |         |
|                            | Horiz Axis  | Min/Max   | 2.4/4.8 | 2.3/5.7 | 2.3/5.0 | 2.7/5.7 | 3.0/5.8 | 4.1/7.0  | 4.2/7.3  | 3.5/6.9 | 2.8/6.4 | 3.5/5.8 | 2.1/5.0 | 1.2/5.3 | 3.5/5.0 |
| 1-Axis, N-S                | Average     | 2.7   | 3.5     | 4.4     | 5.5     | 6.3     | 7.7     | 7.8      | 7.0      | 6.5     | 4.8     | 3.0     | 2.5     | 5.1     |         |
|                            | Horiz Axis  | Min/Max   | 1.6/3.6 | 2.1/5.4 | 2.5/5.9 | 3.4/7.7 | 4.3/8.0 | 5.4/9.5  | 5.5/9.9  | 4.9/9.4 | 3.5/8.4 | 3.5/5.9 | 1.6/4.1 | 0.8/3.7 | 4.1/5.6 |

|                             |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |          |          |         |         |         |         |         |         |
|-----------------------------|-------------|---|---------|---------|---------|---------|---------|----------|----------|---------|---------|---------|---------|---------|---------|
| Tracker                     |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July     | Aug      | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Las Vegas,<br>Nevada        | 1-Axis, E-W | Average   | 4.3     | 4.5     | 4.8     | 5.5     | 6.1     | 6.8      | 6.1      | 5.8     | 5.6     | 5.3     | 4.6     | 4.3     | 5.3     |
|                             | Horiz Axis  | Min/Max   | 2.7/5.7 | 3.0/5.8 | 3.8/6.3 | 4.1/6.4 | 5.2/7.1 | 5.7/7.6  | 4.4/7.1  | 4.4/6.9 | 4.0/6.6 | 3.5/6.1 | 3.1/5.7 | 2.7/5.3 | 4.5/5.8 |
| Reno,<br>Nevada             | 1-Axis, N-S | Average   | 3.4     | 4.4     | 5.7     | 7.4     | 8.2     | 9.1      | 8.2      | 7.8     | 7.1     | 5.6     | 3.9     | 3.2     | 6.2     |
|                             | Horiz Axis  | Min/Max   | 2.1/4.6 | 2.8/5.7 | 4.2/7.7 | 5.5/8.7 | 7.0/9.6 | 7.5/10.3 | 5.5/9.6  | 5.8/9.4 | 4.9/8.5 | 3.7/6.5 | 2.5/4.9 | 1.9/4.0 | 5.2/6.7 |
| Tonopah,<br>Nevada          | 1-Axis, E-W | Average   | 3.2     | 3.5     | 3.9     | 4.4     | 5.2     | 6.0      | 6.6      | 5.9     | 5.4     | 4.8     | 3.4     | 3.1     | 4.6     |
|                             | Horiz Axis  | Min/Max   | 1.8/5.1 | 2.0/5.6 | 2.1/5.8 | 2.7/6.1 | 3.5/6.3 | 4.6/7.2  | 5.3/7.7  | 4.2/6.9 | 3.5/6.9 | 3.7/5.6 | 2.0/5.0 | 1.5/4.8 | 3.6/5.2 |
| Winnemucca,<br>Nevada       | 1-Axis, N-S | Average   | 2.3     | 3.2     | 4.5     | 5.8     | 7.0     | 8.0      | 8.8      | 7.9     | 6.8     | 4.9     | 2.7     | 2.2     | 5.4     |
|                             | Horiz Axis  | Min/Max   | 1.3/3.8 | 1.8/5.2 | 2.3/6.8 | 3.5/8.1 | 4.8/8.5 | 6.1/9.7  | 7.1/10.3 | 5.6/9.4 | 4.2/8.8 | 3.7/5.7 | 1.6/4.1 | 1.0/3.4 | 4.2/6.0 |
| Oklahoma City,<br>Oklahoma  | 1-Axis, E-W | Average   | 2.8     | 3.0     | 3.3     | 3.8     | 4.6     | 5.6      | 6.3      | 5.8     | 5.6     | 5.2     | 4.1     | 3.9     | 5.0     |
|                             | Horiz Axis  | Min/Max   | 1.1/4.5 | 1.6/5.2 | 2.0/4.7 | 1.8/5.0 | 2.7/6.0 | 3.6/7.1  | 5.2/7.5  | 3.6/6.8 | 3.8/6.9 | 3.3/5.8 | 1.3/4.6 | 0.8/4.7 | 3.6/4.8 |
| Burns,<br>Oregon            | 1-Axis, N-S | Average   | 2.0     | 2.7     | 3.8     | 5.1     | 6.2     | 7.4      | 8.5      | 7.5     | 6.5     | 4.5     | 2.3     | 1.8     | 4.9     |
|                             | Horiz Axis  | Min/Max   | 0.8/3.3 | 1.4/4.8 | 2.3/5.4 | 2.3/6.6 | 3.7/8.2 | 4.9/9.5  | 6.9/10.2 | 4.9/9.4 | 4.6/8.8 | 3.2/5.9 | 1.0/3.5 | 0.5/3.2 | 4.2/5.5 |
| Medford,<br>Oregon          | 1-Axis, E-W | Average   | 1.9     | 2.4     | 2.9     | 3.5     | 4.4     | 5.1      | 6.2      | 5.5     | 4.8     | 3.8     | 2.0     | 1.8     | 3.7     |
|                             | Horiz Axis  | Min/Max   | 0.9/3.1 | 0.8/4.4 | 1.6/4.0 | 1.9/5.2 | 2.7/5.5 | 3.8/6.6  | 5.3/7.1  | 3.3/6.9 | 3.5/6.1 | 2.3/5.5 | 0.6/3.9 | 0.9/3.4 | 3.2/4.3 |
| Redmond,<br>Oregon          | 1-Axis, N-S | Average   | 1.3     | 2.1     | 3.2     | 4.6     | 5.9     | 6.9      | 8.3      | 7.3     | 5.9     | 3.7     | 1.5     | 1.1     | 4.3     |
|                             | Horiz Axis  | Min/Max   | 0.6/2.1 | 0.6/3.8 | 1.7/4.4 | 2.6/6.6 | 3.7/7.4 | 5.1/8.9  | 7.2/9.6  | 4.4/9.4 | 4.3/7.6 | 2.3/5.3 | 0.5/2.9 | 0.5/2.2 | 3.7/5.0 |
| San Juan,<br>Puerto Rico    | 1-Axis, E-W | Average   | 1.9     | 2.3     | 2.9     | 3.5     | 4.4     | 5.2      | 6.2      | 5.4     | 4.7     | 3.6     | 2.0     | 1.8     | 3.7     |
|                             | Horiz Axis  | Min/Max   | 1.3/3.3 | 1.1/3.8 | 1.9/4.5 | 2.1/4.8 | 2.7/5.4 | 3.7/6.4  | 4.6/7.7  | 3.8/6.8 | 3.1/6.1 | 2.1/5.2 | 1.2/3.3 | 0.8/3.2 | 3.0/4.2 |
| Rapid City,<br>South Dakota | 1-Axis, N-S | Average   | 1.3     | 1.9     | 3.2     | 4.5     | 5.9     | 6.9      | 8.3      | 7.2     | 5.6     | 3.5     | 1.5     | 1.1     | 4.3     |
|                             | Horiz Axis  | Min/Max   | 0.8/2.2 | 0.9/3.2 | 2.0/4.7 | 2.8/6.1 | 3.7/7.2 | 4.9/8.6  | 5.9/10.5 | 5.0/9.1 | 3.8/7.5 | 1.9/4.9 | 0.9/2.4 | 0.5/2.0 | 3.4/4.8 |

|                       |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |          |         |         |         |         |         |         |         |
|-----------------------|-------------|---|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|
| Tracker               |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July     | Aug     | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Abilene,<br>Texas     | 1-Axis, E-W | Average   | 3.7     | 3.9     | 4.1     | 4.3     | 4.4     | 4.9      | 4.9     | 4.4     | 3.8     | 4.1     | 3.8     | 3.7     | 4.2     |
|                       | Horiz Axis  | Min/Max   | 2.0/5.2 | 2.7/5.3 | 2.7/5.9 | 3.0/5.4 | 3.1/5.3 | 3.8/6.3  | 3.5/6.6 | 3.2/5.7 | 2.8/5.0 | 2.6/5.2 | 2.5/5.0 | 2.2/5.2 | 3.7/4.6 |
| Amarillo,<br>Texas    | 1-Axis, N-S | Average   | 3.1     | 3.9     | 5.0     | 5.7     | 5.8     | 6.4      | 6.5     | 5.9     | 4.8     | 4.5     | 3.4     | 3.0     | 4.9     |
|                       | Horiz Axis  | Min/Max   | 1.7/4.4 | 2.8/5.4 | 3.2/7.2 | 4.1/7.3 | 4.2/7.1 | 5.1/8.3  | 4.6/8.8 | 4.2/7.8 | 3.5/6.5 | 2.9/5.7 | 2.3/4.5 | 1.8/4.2 | 4.3/5.4 |
| Austin,<br>Texas      | 1-Axis, E-W | Average   | 4.0     | 4.1     | 4.2     | 4.6     | 4.6     | 5.2      | 5.0     | 4.6     | 4.2     | 4.6     | 5.0     | 3.9     | 4.4     |
|                       | Horiz Axis  | Min/Max   | 2.5/5.3 | 2.3/5.3 | 3.1/5.4 | 3.5/5.6 | 3.6/5.5 | 4.0/6.5  | 4.1/6.5 | 3.6/5.8 | 3.5/5.6 | 3.0/6.0 | 2.2/5.2 | 2.9/5.7 | 3.9/4.8 |
| El Paso,<br>Texas     | 1-Axis, N-S | Average   | 3.3     | 4.0     | 5.0     | 6.1     | 6.2     | 6.8      | 6.7     | 6.1     | 5.2     | 4.9     | 3.5     | 3.0     | 5.1     |
|                       | Horiz Axis  | Min/Max   | 2.0/4.3 | 2.2/5.3 | 3.5/6.4 | 4.7/7.5 | 4.9/7.4 | 5.2/8.6  | 5.3/8.6 | 4.7/7.9 | 4.5/7.0 | 3.2/6.5 | 2.0/4.5 | 1.7/4.4 | 4.5/5.4 |
| Fort Worth,<br>Texas  | 1-Axis, E-W | Average   | 3.0     | 3.3     | 3.3     | 3.3     | 3.4     | 4.2      | 4.5     | 4.3     | 3.6     | 3.7     | 3.3     | 3.0     | 3.6     |
|                       | Horiz Axis  | Min/Max   | 1.6/4.4 | 1.9/4.7 | 2.0/4.6 | 2.2/5.1 | 1.4/4.4 | 3.0/5.3  | 3.0/5.8 | 3.2/5.5 | 2.4/5.0 | 2.1/4.7 | 1.4/4.9 | 1.9/4.9 | 3.2/4.0 |
| Lubbock,<br>Texas     | 1-Axis, N-S | Average   | 2.6     | 3.4     | 4.0     | 4.3     | 4.4     | 5.4      | 5.9     | 5.6     | 4.5     | 4.1     | 3.0     | 2.5     | 4.2     |
|                       | Horiz Axis  | Min/Max   | 1.4/3.9 | 2.0/4.9 | 2.4/5.6 | 2.9/6.7 | 1.9/5.7 | 3.9/6.9  | 3.9/7.7 | 4.1/7.2 | 2.9/6.4 | 2.2/5.3 | 1.4/4.5 | 1.5/4.1 | 3.7/4.7 |
| Midland,<br>Texas     | 1-Axis, E-W | Average   | 4.5     | 4.9     | 5.2     | 5.6     | 6.1     | 6.3      | 5.2     | 4.8     | 4.7     | 4.9     | 4.7     | 4.4     | 5.1     |
|                       | Horiz Axis  | Min/Max   | 3.0/5.9 | 3.4/6.3 | 3.3/6.6 | 4.3/6.4 | 5.2/7.3 | 4.9/7.6  | 4.2/6.1 | 3.9/5.9 | 3.7/5.6 | 3.7/6.2 | 2.7/5.8 | 2.8/5.5 | 4.6/5.6 |
| San Angelo,<br>Texas  | 1-Axis, N-S | Average   | 3.8     | 5.0     | 6.3     | 7.6     | 8.2     | 8.2      | 6.8     | 6.4     | 5.9     | 5.4     | 4.2     | 3.6     | 6.0     |
|                       | Horiz Axis  | Min/Max   | 2.7/5.1 | 3.5/6.5 | 4.0/8.2 | 5.8/8.8 | 7.0/9.9 | 6.4/10.0 | 5.4/8.1 | 5.1/7.8 | 4.7/7.1 | 4.0/6.9 | 2.4/5.3 | 2.2/4.5 | 5.4/6.5 |
| San Antonio,<br>Texas | 1-Axis, E-W | Average   | 3.2     | 3.4     | 3.4     | 3.5     | 3.7     | 4.4      | 4.7     | 4.2     | 3.6     | 3.7     | 3.4     | 3.2     | 3.7     |
|                       | Horiz Axis  | Min/Max   | 1.5/4.5 | 2.3/4.8 | 2.1/4.7 | 2.4/5.2 | 2.0/4.9 | 3.5/5.4  | 3.5/6.2 | 2.9/5.4 | 2.4/4.8 | 2.3/4.9 | 1.8/4.4 | 1.9/4.5 | 3.3/4.1 |
| Waco,<br>Texas        | 1-Axis, N-S | Average   | 2.7     | 3.4     | 4.1     | 4.6     | 4.9     | 5.7      | 6.2     | 5.6     | 4.5     | 4.0     | 3.0     | 2.5     | 4.30    |
|                       | Horiz Axis  | Min/Max   | 1.2/3.8 | 2.3/4.7 | 2.5/5.7 | 3.2/6.8 | 2.7/6.5 | 4.5/7.2  | 4.7/8.3 | 3.8/7.4 | 3.0/6.1 | 2.5/5.3 | 1.7/4.0 | 1.5/3.5 | 3.8/4.7 |

|                          |             | Direct Beam Solar Radiation for Concentrating Collectors (kWh/m <sup>2</sup> /day), Uncertainty ±8% |         |         |         |         |         |          |         |         |         |         |         |         |         |
|--------------------------|-------------|---|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|
| Tracker                  |             | Jan   | Feb     | Mar     | Apr     | May     | June    | July     | Aug     | Sept    | Oct     | Nov     | Dec     | Year    |         |
| Wichita Falls,<br>Texas  | 1-Axis, E-W | Average   | 3.4     | 3.5     | 3.7     | 3.9     | 4.1     | 4.7      | 4.9     | 4.4     | 3.9     | 4.0     | 3.5     | 3.3     | 3.9     |
|                          | Horiz Axis  | Min/Max   | 1.6/4.7 | 2.4/5.0 | 2.5/4.9 | 2.8/4.9 | 3.2/5.1 | 4.0/5.9  | 3.7/6.6 | 3.2/5.4 | 2.7/5.1 | 2.5/5.2 | 2.2/4.7 | 2.0/4.9 | 3.4/4.3 |
| Cedar City,<br>Utah      | 1-Axis, N-S | Average   | 2.8     | 3.5     | 4.4     | 5.2     | 5.5     | 6.2      | 6.5     | 5.9     | 4.9     | 4.3     | 3.0     | 2.6     | 4.6     |
|                          | Horiz Axis  | Min/Max   | 1.3/3.9 | 2.4/5.1 | 3.0/5.8 | 3.6/6.6 | 4.2/6.7 | 5.3/7.8  | 4.8/8.8 | 4.2/7.4 | 3.4/6.6 | 2.7/5.6 | 1.8/4.2 | 1.5/3.8 | 4.0/5.1 |
| Salt Lake City,<br>Utah  | 1-Axis, E-W | Average   | 3.7     | 3.8     | 3.8     | 4.5     | 5.1     | 6.2      | 5.5     | 5.1     | 5.1     | 4.8     | 3.9     | 3.7     | 4.6     |
|                          | Horiz Axis  | Min/Max   | 2.5/5.2 | 2.3/5.4 | 2.1/5.4 | 3.0/5.9 | 4.1/6.2 | 4.8/7.5  | 4.1/6.9 | 3.6/6.6 | 3.2/6.3 | 2.3/5.8 | 2.8/5.8 | 1.9/5.6 | 3.6/5.6 |
| Yakima,<br>Washington    | 1-Axis, N-S | Average   | 2.9     | 3.6     | 4.6     | 6.0     | 7.0     | 8.3      | 7.5     | 6.9     | 6.6     | 5.1     | 3.3     | 2.7     | 5.4     |
|                          | Horiz Axis  | Min/Max   | 2.0/4.1 | 2.0/5.2 | 2.6/6.5 | 4.1/7.9 | 5.6/8.5 | 6.3/10.1 | 5.5/9.4 | 4.8/9.0 | 4.0/8.1 | 2.5/6.1 | 2.3/4.9 | 1.4/4.1 | 4.2/6.5 |
| Casper,<br>Wyoming       | 1-Axis, E-W | Average   | 1.4     | 2.2     | 3.0     | 3.5     | 4.4     | 5.0      | 5.8     | 5.2     | 4.5     | 3.4     | 1.7     | 1.3     | 3.5     |
|                          | Horiz Axis  | Min/Max   | 0.6/2.5 | 0.4/3.4 | 1.9/4.0 | 2.3/4.6 | 2.9/5.4 | 3.6/6.5  | 4.6/6.9 | 3.9/6.6 | 2.9/5.8 | 1.9/4.3 | 0.9/2.5 | 0.6/2.5 | 3.1/3.8 |
| Cheyenne,<br>Wyoming     | 1-Axis, N-S | Average   | 0.9     | 1.8     | 3.2     | 4.5     | 5.9     | 6.6      | 7.8     | 6.8     | 5.3     | 3.1     | 1.2     | 0.8     | 4.0     |
|                          | Horiz Axis  | Min/Max   | 0.3/1.6 | 0.4/2.8 | 2.1/4.2 | 2.8/5.7 | 4.0/7.3 | 4.7/8.7  | 6.1/9.3 | 5.2/8.8 | 3.3/6.9 | 1.7/4.1 | 0.6/1.8 | 0.4/1.5 | 3.5/4.4 |
| Lander,<br>Wyoming       | 1-Axis, E-W | Average   | 3.3     | 3.6     | 3.6     | 3.8     | 3.9     | 4.8      | 4.9     | 4.5     | 4.3     | 4.1     | 3.3     | 3.2     | 3.9     |
|                          | Horiz Axis  | Min/Max   | 2.1/4.3 | 2.8/4.3 | 2.5/4.5 | 3.0/4.6 | 2.6/4.8 | 3.4/6.1  | 4.3/5.7 | 2.9/5.2 | 2.9/5.3 | 2.4/4.9 | 2.6/3.9 | 2.3/4.3 | 3.5/4.3 |
| Rock Springs,<br>Wyoming | 1-Axis, N-S | Average   | 2.3     | 3.2     | 4.1     | 5.0     | 5.2     | 6.4      | 6.5     | 6.0     | 5.2     | 4.1     | 2.6     | 2.1     | 4.4     |
|                          | Horiz Axis  | Min/Max   | 1.7/3.1 | 2.5/3.9 | 2.7/5.3 | 4.0/6.1 | 3.5/6.5 | 4.5/8.2  | 5.7/7.6 | 3.8/7.0 | 3.5/6.6 | 2.4/4.9 | 2.0/3.1 | 1.5/2.9 | 3.9/4.9 |
| Sheridan,<br>Wyoming     | 1-Axis, E-W | Average   | 3.0     | 3.4     | 3.6     | 3.8     | 4.4     | 5.3      | 5.4     | 5.0     | 4.7     | 4.2     | 3.1     | 2.9     | 4.1     |
|                          | Horiz Axis  | Min/Max   | 2.1/4.2 | 2.2/4.3 | 2.1/4.4 | 2.7/4.9 | 3.0/5.6 | 4.0/6.6  | 4.5/6.3 | 3.6/6.0 | 2.9/6.1 | 2.8/5.3 | 2.2/4.3 | 1.5/3.9 | 3.2/4.5 |
|                          | 1-Axis, N-S | Average   | 2.1     | 3.0     | 4.0     | 5.0     | 5.9     | 7.2      | 7.3     | 6.7     | 5.8     | 4.2     | 2.4     | 1.9     | 4.6     |
|                          | Horiz Axis  | Min/Max   | 1.5/3.0 | 2.1/3.9 | 2.2/5.1 | 3.4/6.4 | 4.0/7.6 | 5.3/8.9  | 6.0/8.6 | 4.7/8.2 | 3.5/7.7 | 2.8/5.5 | 1.7/3.3 | 0.9/2.6 | 3.6/5.2 |



**Map showing the location of the 239 stations in the National Solar Radiation Data Base, the data of which were used to calculate values for this appendix.**